cranial pathology since, particularly in children, infection may travel from the middle ear to the brain with little or no mastoid involvement.

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DISCUSSION

I. Leon Meyers, M. D. (1930 Wilshire Boulevard, Los Angeles).—I should like to add to the presentation by Doctor Adelstein a point that is frequently of much value in the diagnosis of brain abscess.

I am referring to the characteristic facial expression—an expression of distress, of lack of vitality, with a pallor bordering on jaundice which a patient with a brain abscess, especially the chronic variety, presents. This facial expression is, it may be presumed, a manifestation of the toxicity and the lowered metabolism of the patient which, as mentioned by Doctor Adelstein, are responsible for his subnormal temperature. It may not be present in the patient with an acute abscess and an associated meningitis, in which case the patient is quite alert and his face may be flushed. It is, however, very striking in the patient who has a brain abscess which, as a walled-off process, has supposedly been dormant for some time.

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Eugene R. Lewis, M. D. (727 West Seventh Street, Los Angeles). — The differentiation between otitic brain abscess and circumscribed meningitis is certainly of importance from many standpoints. Whether Gradenigo's syndrome is manifested or not, the findings and symptoms as presented in this paper permit of no great confusion between the clinical indications of the symptom groups characterizing these two conditions. Unfortunately the typical combination of symptoms is not always strictly adhered to; it is often necessary to solve the same kind of riddle as "what has web feet, feathers, and barks like a dog?" The diagnostician is compelled to decide what "duck" is the answer, and that "barks like a dog" was added to make it more difficult. He must elicit very carefully the cardinal points from history, symptoms and examination and keep these clearly in mind, ignoring what seems "added to make it more difficult."

There is one thing that stands out as of particular importance respecting otitic brain abscess; there is no advantage in hurrying a surgical attack, and there are definite advantages in going slow. Many diagnoses of brain abscess have proved erroneous; by restraining the impulse to early surgery these cases are permitted to come out in their true colors. Thorough organization of exudate around a brain abscess and subsidence of much or even all of the tympano-mastoid purulence during persistent application of systemic and local measures over an adequate period of surgical delay, are some of the rewards of making haste slowly. Too much emphasis cannot be put upon the undismayed continuous use of all possible systemic and local conservative measures over long preoperative periods in every case of suspected intracranial extension of tympano-mastoid infection.

In my opinion the prognosis of cases handled in this manner is distinctly bettered, as to both nonoperative and operative recovery.

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Doctor Adelstein (Closing).—Gradenigo's syndrome or localized meningitis may well be looked upon as a border-line condition. The infection has found its way to the meninges and the question is, will it resolve spontaneously or go on to further intracranial invasion with formation of a true brain abscess? We believe that the patient is given the better chance for an early uncomplicated recovery if a mastoidectomy is done in these cases, even if the x-ray evidence is not entirely conclusive. There have been cases of spontaneous recovery of Gradenigo's syndrome; however, the danger of delay is great, and since mastoidectomy removes at once the original focus of infection, we believe that the operation is perhaps, in the long run, the more conservative treatment.

PYOGENIC EPIDIDYMITIS—ITS TREATMENT*

By Henry A. R. Kreutzmann, M. D.
San Francisco

Discussion *by Charles P. Mathé, M. D., San Francisco; James Potter, M. D., United States Training Station, Goat Island, San Francisco.*

THE epididymitis referred to throughout this paper is of the nongonorrheal, nontuberculous type.

PATHOLOGY

This condition is not uncommon. Some authors claim that it occurs in from 20 to 30 per cent of patients having an infection of the bladder, posterior urethra, seminal vesicles, or prostate. My experience also has been that it occurs all too frequently in spite of the greatest gentleness in instrumentation.

The route of infection is by way of the lumen of the vas deferens. This has been proved conclusively since ligation of the vas, preliminary to prostatectomy, has been instituted as a routine procedure. However, the method by which bacteria gain access to the ejaculatory duct is still in doubt. Lommel found that on traumatizing the colliculus seminalis, the contents of the posterior urethra can pass through the ejaculatory duct into the seminal vesicle or the vas, whereas this never occurred when the verumontaine was intact. He concluded that the organisms were sucked out of the posterior urethra.

Herbst believes that when the ejaculatory duct becomes blocked infectious material from the seminal vesicle is unable to enter the urethra. It then passes down the vas to the epididymis, setting up an inflammation in that structure.

Belfield noted on three different occasions while performing a vasotomy the escape of urine through the incision. This occurred when a strong desire to urinate was resisted by the patient. He feels that the retrograde passage of urine into the seminal duct may be the not infrequent cause of recurrent epididymitis.

* Read before the Urology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

Pelouze believes that greatly increasing the intravesical or urethral pressure may force infected material into the seminal vesicle. Pressure on this organ may then direct the bacteria into the vas deferens.

Even though the method by which the infection reaches the upper part of the vas is still in doubt, we do know that involvement cannot occur unless there is an infection either in the posterior urethra or seminal vesicle.

It is surprising that the pathological sequence of this condition is still unsettled. Most experimenters believe that in the early stages the organisms remain within the lumen of the globus minor, where they form localized abscesses.

Rolnick, after injecting pyogenic organisms into the vas, made sections through the entire testicle one to eight days afterward. He concluded from his studies that within a few hours after the bacteria had reached the tail of the epididymis they penetrate between the epithelium, involve the wall and extend to the interstitial and peritubular tissues there to set up the inflammatory process. He found that where large abscesses had formed they were interstitial and had pushed the tubule aside or had compressed it.

At the present time it is still an open question whether the organisms and the abscesses in the early stages of the infection are found within the lumen or in the peritubular spaces. That the infectious material cannot penetrate farther than the globus minor has been shown conclusively by injecting bacteria and opaque solutions into the vas. This is due to the peculiar formation of the loops of the body of the epididymis. In severe infections, if the remainder of the structure is involved, it is by way of the peritubular lymphatics.

The predisposing cause of epididymitis in man is an infection of the urine, the posterior urethra, the seminal vesicles or prostate. If, on top of this, we place the additional burden of sexual excesses, excessive drinking, or rough manipulations by the physician, an infection of the epididymis is not at all unlikely.

In order to reduce the possibility of such a condition we must first recognize the presence of the underlying causes. Our aim should be to remove the infection in the various organs. If the patient insists on continuing his mode of living, he will then be in less danger of suffering the consequences.

RESPONSIBILITY OF PHYSICIAN

The physician, on the other hand, should realize his power to produce or prevent an acute inflammation. Nothing is more humiliating to me than to have a patient return, after the passage of sounds or a cystoscope, with an acute epididymitis.

Gentleness in instrumentation is not always a sufficient guarantee against the production of this complication. Cystoscopic procedures, especially fulguration about the veru, when carried out in the presence of a chronic infection of the posterior urethra or prostate may readily set up an epididymitis. This fact has received very little recognition in the past. By the proper course of treatment we can materially aid in avoiding this complication.

For the past few years, wherever possible, I have studiously avoided inserting any metal instrument into the posterior urethra without first reducing or entirely removing whatever infection may be present. The results have been most gratifying. In the few cases where an epididymitis has developed, it has been of such a mild character that the patients were able to be up and about in a few days with only moderate induration of the globus minor.

There are, unfortunately, a number of instances in which it is impossible to postpone the passage of a cystoscope because of the acute condition of the upper urinary tract. Here one will occasionally have a severe epididymitis, and I know of no way of preventing it.

TREATMENT

In the treatment of this condition we must realize that at times we are dealing with a very virulent organism and the character of the infection may be entirely different from that produced by the gonococcus. Fortunately, however, most of the cases follow the same course as that of gonorrheal epididymitis and the same mode of treatment can be instituted. This consists of rest in bed with elevation of the scrotum. After trying every method, I have found that the suspensory described by Campbell and used at the Bellevue Hospital gives the best result and is most comfortable to the patient.

One gram of calcium chlorid, intravenously, given daily for three to five injections may in the mild cases hasten resolution. Either hot or cold local applications are also of benefit.

With this expectant treatment, my patients have been confined to bed on an average of ten days. Some authors advise immediate epididymotomy, claiming that less damage is done to the tissues involved and that the patients are transformed into ambulatory cases within two or three days. It has been my experience that even after epididymotomy the inflammation does not subside rapidly enough for the patient to get about for a number of days and that no benefit is gained by early operation.

Operative Indications.—The great problem that confronts us is when to operate. To determine this it is best to divide the patients into two classes: (1) those with an acute infection of the genito-urinary tract, and (2) patients with chronic infections.

In those instances where an epididymitis occurs following an acute pyelitis or cystitis, the patient has very little resistance to the invading organism and its virulence is therefore great. Here early operation is indicated to prevent the formation of large abscesses and possible involvement of the testicle itself.

Where there is a chronic prostatitis or seminal vesiculitis, we may assume that the bodily resistance will be able to take care of the new invasion and, therefore, nonoperative procedures may be

carried out. Of course, there are exceptions to this statement, but as a general rule it is worth considering.

After operation has been decided upon, the question arises whether one should simply drain the epididymis or remove it. In these cases one cannot be guided by analogous examples of gonococcal infection. We are dealing with an organism virulent enough to overcome the resistive powers of the tissues. I feel that if the patient is so ill as to necessitate an operation, then removal of the epididymis should be performed. Destruction of the tubules has already taken place and it is not a question of preventing sterility, but of stopping the spread of the infection.

In some of the severe early cases I have noted on needling the globus major and the upper pole of the testicle, serous fluid oozing out of the puncture wounds. This to me indicates early involvement of the entire epididymis and testes. Alleviation can only be obtained by removing the infected region en masse.

Needling or incising the globus minor, as is done when the gonococcus is the invading organism, is not advisable.

The purpose of epididymotomy is to produce as little trauma as possible in order to prevent sterility. In these nongonorrheal cases, this operation merely causes the abscesses to coalesce, with great destruction of tissue and long-continued drainage of pus. As a result the object of the operation, namely, prevention of sterility, will not be attained.

SUMMARY

In summarizing my observations, I conclude that:

1. The majority of cases of epididymitis can be prevented if the foci of infection are eradicated before instrumentation is performed.
2. In patients with chronic infections of the genito-urinary tract, the expectant treatment of epididymitis should be the rule.
3. When an operation is performed, the epididymis should be removed.

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DISCUSSION

CHARLES P. MATHÉ, M. D. (760 Market Street, San Francisco).—I have been very much interested in the operation for epididymitis. In treating acute epididymitis it has been our custom to employ the intravenous injection of calcium with glucose. If no relief is obtained from its use in a reasonable length of time, operation is contemplated. It has been my good fortune to have often assisted Dr. L. Bazet, the first surgeon to perform the operation of epididymotomy in the sense of draining pus accumulated within the epididymis. The results were excellent in the fact that the patients' symptoms rapidly subsided with drainage. In the past it has been our custom to remove tuberculous epididymi, and to drain those infected by the gonococcus and the pus-producing organisms. I am glad to see that Doctor Kreutzmann employs epididymectomy in place of simple drainage. It seems to me that this would be the operation of choice in the recurrent type of epididymitis. In the acute fulminating type, however, characterized by huge enlargement of the epididymis, inflammatory hydrocele and marked congestion of the surrounding tissues, simple epididymotomy is the safest procedure and gives excellent results.

JAMES POTTER, M. D., (United States Training Station, Goat Island, San Francisco).—Nonvenereal epididymitis developing in a man who is in the naval service is a big question. The men who develop venereal epididymitis and require admission to the sick list lose pay while incapacitated. Naturally, it is difficult for us to obtain an unbiased history, and most cases are considered to be of venereal origin. In regard to treatment, I believe that the injection of nonspecific foreign protein in conjunction with calcium chlorid is almost a specific. In addition, the exposure of the swollen testicle to an infra-red light from thirty to forty minutes each day will markedly decrease the number of sick days.

DERMATOLOGY FOR NURSES*

By ERNEST DWIGHT CHIPMAN, M. D.
San Francisco

DISCUSSION *by Thomas J. Clark, M. D., Oakland; Harry E. Alderson, M. D., San Francisco.*

IN a paper read before this section one year ago I ventured the assertion that less than 10 per cent of the nurses we meet are capable of applying a satisfactory dermatologic dressing. As a result of the suggestion that some one be delegated to deal with this question at this meeting our chairman invited me to undertake the task.

Now it takes no exhaustive study to determine why nurses are not prepared adequately to care for our cases. There are two reasons. Taken by and large, probably a smaller percentage of dermatologic cases require nursing care than those of any other specialty. So lack of experience is one reason. The second reason is a lack of interested teaching to nurses in the training schools. While the first reason is not within our control we can and should do our part in teaching the nurses what we expect of them.

STATE BOARD REQUIREMENTS IN TEACHING OF NURSES

The teaching of nurses is regulated largely by the requirements of the State Board. In preparing a synopsis of this paper I referred to the State Board requirements as calling for a knowledge of purpura and pellagra and not for any special ability to put on an acceptable dermatologic dressing. I since learn that these are the requirements of the National League of Nursing Education.

TEACHING REQUIREMENTS OF NATIONAL LEAGUE OF NURSING EDUCATION

The outline from the standard curriculum of this League is much more comprehensive in its scope than that of the California State Board. Its program is divided into ten parts and includes much that is given under the head of medicine and surgery in this state; for example, the acute exanthemata and carcinoma. It also includes syphilis, tuberculosis, purpura, pellagra and myxedema.

Under this plan fifteen units are required and if, for example, six lectures are given by a der-

* Read before the Dermatology and Syphilology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.